Message

**From:** Lowery, Brigid [Lowery.Brigid@epa.gov]
**Sent:** 1/15/2021 7:06:17 PM
**To:** Stalcup, Dana [Stalcup.Dana@epa.gov]; Fleming, Sheila [fleming.sheila@epa.gov]
**CC:** Fitz-James, Schatzi [Fitz-James.Schatzi@epa.gov]; Libelo, Laurence [Libelo.Laurence@epa.gov]; Walker, Stuart [Walker.Stuart@epa.gov]; Gartner, Lois [Gartner.Lois@epa.gov]
**Subject:** Hunter's point tps
**Attachments:** BPMO-20-034 (002) STUART 1_14_2021 comments.docx; Copy of WTC and BPRG Dust Ingestion Parameter Comparison.xlsx

**Dana, I haven't had a chance to QA/QC this. I took it from a couple of Stuart emails and calls we've had. Here are Enrique's 3 questions and supplemental material is attached.**

**Responses to Enrique's questions in 12/23/20 email**

1) It would be helpful to know of other Superfund cleanup examples where remediation goals have been set to address radiologically-contaminated buildings for residential use (whether using BPRG, RRB, or another risk model).

2) We do not have a clear sense of how many times the BPRG calculator has been used to provide cleanup values at NPL sites, and the circumstances in which it has been used (e.g., radionuclides, target risk, RGs, building use). We are especially interested in examples where the planned use was residential.

    - There are 67 RAD sites on the NPL. *At the majority* of the sites the buildings are demolished; thereby, alleviating the need to use the BPRG or other risk models for buildings for residential use.

    - We are querying regions and searching for examples where we have used the BPRG for addressing dust contamination or the same dust ingestion approach for indoor chemical contamination.

    - We do not expect to find many examples. EPA conducts few risk assessments of building contamination for purposes of setting cleanup levels. We are not aware of any chemical risk assessment model/guidance that uses the RESRAD Build approach for dust ingestion.

    - We are also trying to determine the extent of apartments, homes, offices, etc. that were addressed using the WTC benchmarks.

3) We expect that one of the primary topics of discussion in a dispute will be the level of conservatism designed into the RRB and BPRG calculators for removable radiological contamination (i.e., dust) and the much higher risks estimated by the BPRG calculator. The BPRG calculator estimates risk by multiplying a contaminant concentration by four exposure factors. We encourage you to be prepared to explain the basis for the default values for these four factors, the use of the product of the four factors to estimate risk, and examples where HQ has supported site-specific modifications to the calculator to estimate risk from radiologically contaminated dust.

    - The BPRG has gone through multiple peer reviews and is a sound, robust tool.

        - The BPRG was released in 2007 and used information from the World Trade Center response. The WTC document was used as the original source since this effort had undergone a gold plated scientific panel peer review, and the exposure input parameters would be the same whether it is a chemical or radiological contaminant. It was subsequently updated after EPA's Exposure Factors Handbook was revised to reflect the latest exposure assumptions.

- The World Trade Center risk assessment protocols went through an extensive panel peer review.

- The BPRG has had one independent and two non-independent external peer reviews. RESRAD Build has never undergone an external peer review.

- The default parameters can be changed with justification. EPA built into the model an assumption that most buildings at contaminated sites will still have soil outside with some level of contamination that people can track into the building.

  - The default dissipation rate in the BPRG calculator is zero. The WTC response was able to justify a dissipation rate of 0.38. In discussions with EPA staff that developed the WTC benchmarks, the default of zero was chosen since BPRG may be used at sites where continued replenishment of contamination indoors may be occurring.

  - If a site-specific argument can be made that additional replenishment of radiologically contaminated dust indoors will be exceeded by the standard cleaning of rooms, a justifiable dissipation rate would be the input parameter where it would be most likely to justify a change from the default of 0.

  - The Navy could come up with a credible argument for changing the default vale of zero dissipation rate. We have discussed this with the Navy before in meetings.

- Based on previous discussion, the Navy is talking about field measurements for the BPRG default (not using a dissipation rate) runs for settled dust. Swipe samples of dust being taken to a lab should be measurable. If there are questions on how to do this, I recommend engaging EPA HQ radiation survey and lab analysis experts such as David Kappelman of OSRTI/ERT and John Griggs of ORIA Montgomery lab director.

- See attached Excel file with table summarizing the input parameters for ingestion of dust indoors used in the 2003 WTC document, BPRG calculator when initially issued in 2007, and current version of the BPRG calculator.

- We are also attempting to develop a chart of different federal and California programs that have adopted similar default parameters for ingestion of indoor contaminants. EPA's pesticides program was the source of much of the WTC parameters, and I discussed our effort with one of their senior staffers who looked over the attached table and confirmed their defaults were the same for indoor ingestion and then sent me their risk assessment guidance. My main ORNL contact on developing the BPRG contractor also worked with EPA and other federal agencies staff on a risk assessment methodology for airports that had contaminants left after a terrorist attack, which used the WTC approach for indoor ingestion. He has emails indicating this approach was adopted in California regulations (and several other states) on meth lab cleanup and guidance on airport cleanup, possibly other DHS and DOE guidance, and he has a DOD guidance on clearance of platforms and material from chemical weapon agents that follows the WTC/BPRG approach .

- See attached comments to the Navy's letter.

Brigid Lowery
Director, Assessment and Remediation Division
Office of Superfund Remediation and Technology Innovation

Office of Land and Emergency Response
202-689-9502